Trend Study 8A-2-00

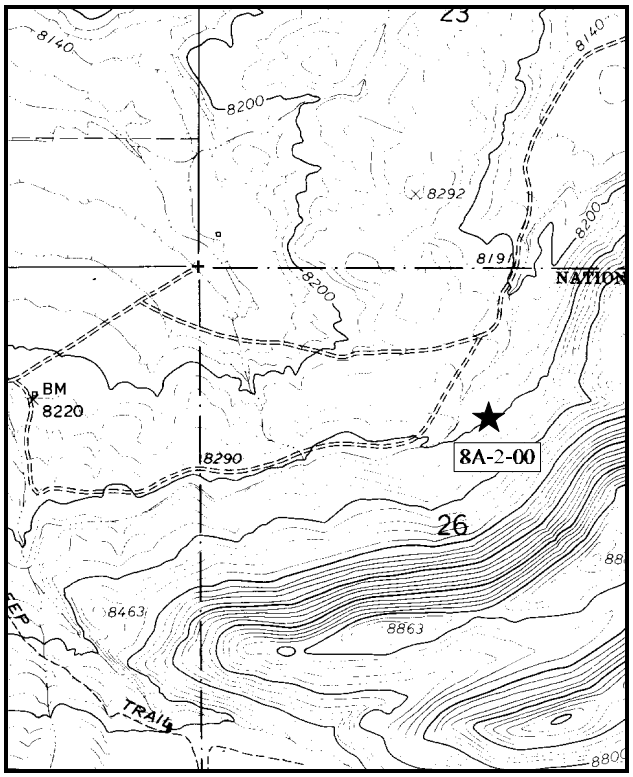
Study site name: Widdop Mountain North Slope . Range type: True Mountain Mahogany .

Compass bearing: frequency baseline 146°M .

First frame placement on frequency belts 5 feet. Frequency belt placement; line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft.), line 4 (71ft).

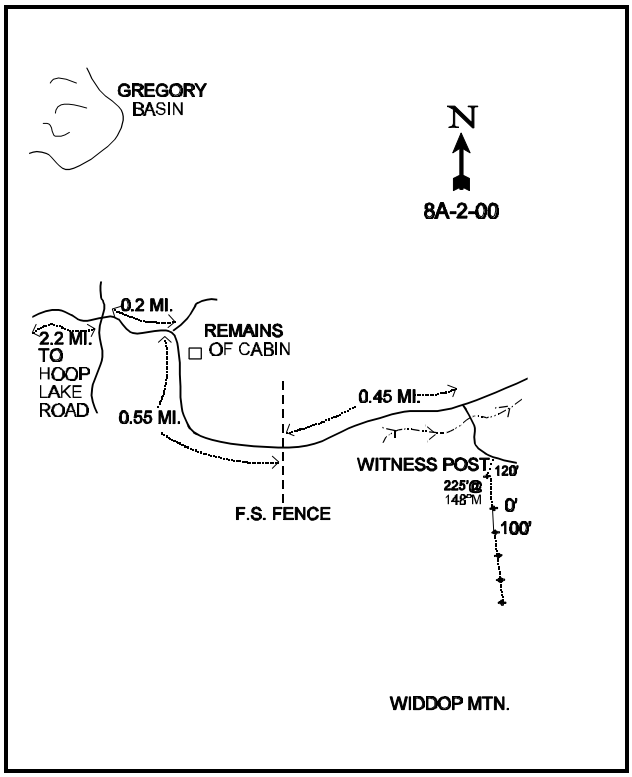
LOCATION DESCRIPTION

Two miles south of the Wyoming-Utah state line, on the Hoop Lake Road along the Middle Fork of Beaver Creek, turn east toward Gregory Basin. Go 0.6 miles to a private property fence. Continue east 1.1 miles, going past a cabin to a fence. Go 0.1 miles to a fork, continue straight. Go 0.4 miles to an old 4-way intersection south of Gregory Basin. Continue straight east 0.2 miles to an old cabin, bear right. Proceed 0.55 miles to the FS boundary fence. Go along the bottom 0.45 miles to a faint fork. Bear right and go across the stream. Continue east 0.l miles towards the base of Widdop Mountain. On the south side of the road, look for a witness post in the sagebrush. The 0-foot baseline stake is 225 feet south of the witness post at 148°M.



Map Name: Hoop Lake

Township 3N , Range 16E , Section 26



Diagrammatic Sketch

UTM 4535338 N, 576248 E

DISCUSSION

Trend Study No. 8A-2

The Widdop Mountain North Slope study is located on the opposite side of the mountain from the previous study (#8A-1). This site on Widdop Mountain also samples a true mountain mahogany type that has a northwest aspect. It is moderately steep at the top, but more gentle towards the bottom where the study is located. The site has a slope of approximately 22% and an elevation of 8,300 feet. Although located on a northerly exposure, this hillside receives considerable use by elk in the winter. Pellet group data from 2000 estimate 44 elk, 3 deer and 12 cow days use/acre (109 edu/ha, 7 ddu/ha and 30 cdu/ha). Quite a few moose also appear to be using this site along with a few antelope. Most of the elk pellet groups appear to be from winter use while moose seem to be using the site more in the spring. There is excellent thermal and escape cover provided by a nearby dense conifer stand.

Soils on the site are moderately deep but variable. Effective rooting depth is estimated at nearly 14 inches, but soil depth varies between 11inches at the bottom of the slope to 16 inches further up the slope at the end of the baseline. The study site begins further up slope where mountain mahogany is found and runs downhill where black sagebrush becomes dominant on more shallow soils at the bottom of the slope. Near the top of the slope there is abundant gravel in the soil profile which becomes small cobble further down. There is also calcium carbonate deposits on the rocks. Soil penetrometer readings suggest that most of the rock is concentrated within the top 8 inches of the soil profile. The soil has a loam texture with a slightly alkaline reactivity (pH of 7.4). It is high in percent organic matter but very low in phosphorus at only 3.4 ppm. Values less than 10 ppm can limit normal plant growth and development. Soil parent material is identical to 8A-1, with both limestone and sandstone. The ground surface is well covered by vegetation and litter leaving little bare ground exposed. Aside from some mild soil pedestaling on the uphill side of shrubs, there is little soil movement or erosion on the site.

The slope is dominated by true mountain mahogany, associated with snowberry, pockets of black sagebrush and occasionally mountain big sagebrush and serviceberry. These secondary browse comprise about 37%-38% of the browse cover and show mostly light to moderate use. Mahogany provides nearly half of the browse cover with a current (‘00) density of 7,360 plants/acre. Mountain mahogany density was estimated at 24,332 plants/acre in 1988. Similar to site #1, the majority of the population consisted of young plants (89%) in 1988, which became established during years of above average precipitation, then thinned out during the extended drought. Mature plants numbered 2,066 plants/acre in 1988 and averaged about 2 feet in height. Twelve percent of the population displayed heavy utilization with generally good vigor. During the 1995 reading, there were an estimated 6,880 plants/acre. The drop in density is primarily from the great reduction in the number of young plants. Changes in density could also be due to the greatly enlarged sample size used beginning in 1992 which more accurately estimates shrub populations. Seedlings also declined from 6,600 in 1988 to 2,440 by 1995 and 1,180 in 2000. The number of mature plants increased from 2,066 plants/acre in 1988, to 3,680 plants/acre in 1995 and 2000. Use is lighter on this site compared to 8A-1 Widdop Mountain South Slope. Use was light to moderate in 1988 increasing to moderate to heavy in 1995. Currently (‘00), 41% of the mahogany is heavily browsed. Some of the increase in heavy use may be due to the poor annual leader growth of only 2.4 inches in 2000. Poor leader growth gives plants the appearance of heavier use than what actually occurred. Even with the heavy use, the mahogany is healthy, vigor is normal and percent decadence is low.

Grasses are diverse and moderately abundant, accounting for nearly 13% cover in 1995 and 15% in 2000. Prominent species include: bluebunch wheatgrass, Carex, mutton bluegrass and needle-and-thread. Forbs are diverse with over 20 species encountered in 1995 and 2000. Common species are low growing forbs like desert phlox, pussytoes, ballhead sandwort and sulfur eriogonum. Desirable species include: yellow Indian paintbrush, Lewis flax and low penstemon.

1995 TREND ASSESSMENT

Even with drought conditions, ground cover characteristics have improved on this site. Percent bare ground has declined from 12% to 6% and percent litter cover has remained steady at 57%. There is more than adequate ground cover to control erosion. Trend for soil is up. The browse trend is stable for most of the palatable species, especially so for the key species, true mountain mahogany. The large numbers of seedlings and young estimated in 1988, were inflated due to above average precipitation in the mid-1980's in conjunction with the much smaller sample size used in 1988. The number of mature plants increased in 1995 and percent decadence remained low at 2%. The number of seedlings and young declined, but they remain at a high level and are adequate to maintain the population. Secondary browse species, serviceberry, black sagebrush, mountain big sagebrush and snowberry provide additional forage. These species generally display stable to improving trends with light to moderate use. The herbaceous trend is mixed. Sum of nested frequency of grasses has remained stable while nested frequency of forbs declined. This is a common trend during dry years. Combined nested frequency for grasses and forbs have declined slightly indicating a slightly downward trend.

TREND ASSESSMENT
soil - up (5)
browse - stable (3)
herbaceous understory - slightly down (2)

2000 TREND ASSESSMENT

Trend for soil is stable even though percent bare ground increased slightly. The ratio of protective cover (vegetation, litter and cryptogams) to bare ground has remained identical to 1995 at 3.8 to 1. Vegetation and litter cover are abundant and well dispersed and erosion is minimal. Trend for the key browse species, mountain mahogany, is also stable. Use is heavier with 41% of the shrubs sampled being heavily browsed. However, vigor is normal and percent decadence is still relatively low. Biotic potential (# of seedlings) has declined from 35% to 16%, but the proportions of young and mature plants have remained similar. Trend for the herbaceous understory is mixed. Sum of nested frequency of perennial grasses has declined slightly, with frequency of perennial forbs declining moderately. This decline is a common trend in the state this year due to the dry conditions. Trend is considered down slightly since forbs and grasses both showed downward trends.

TREND ASSESSMENT
soil - stable (3)
browse - stable (3)
herbaceous understory - slightly down due to drought (2)

HERBACEOUS TRENDS --
Herd unit 08A, Study no: 2

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'88	'95	'00	'88	'95	'00	'95	'00
G	Agropyron dasystachyum	a-	a-	b7	-	-	3	-	.04
G	Agropyron spicatum	151	154	169	55	61	63	2.74	5.26
G	Bromus inermis	-	3	-	-	2	-	.01	-
G	Carex spp.	a59	b115	b132	32	45	54	2.68	5.48
G	Koeleria cristata	a-	b29	b17	-	13	7	.16	.18
G	Leucopoa kingii	b26	a9	ab18	12	3	8	.04	.43
G	Oryzopsis hymenoides	-	3	3	-	1	2	.15	.03
G	Poa fendleriana	b104	a17	a42	42	7	15	.28	2.90
G	Poa secunda	a-	b32	b37	-	14	15	.14	.25
G	Stipa comata	a174	a148	b43	63	53	18	6.46	.67
Total for Annual Grasses		0	0	0	0	0	0	0	0
Total for Perennial Grasses		514	510	468	204	199	185	12.69	15.27
Total for Grasses		514	510	468	204	199	185	12.69	15.27
F	Allium spp.	-	3	-	-	1	-	.00	-
F	Antennaria rosea	a17	b39	ab22	7	16	10	.25	.29
F	Androsace septentrionalis (a)	-	1	2	-	1	1	.00	.00
F	Arabis spp.	b33	b23	a5	18	12	2	.08	.03
F	Arenaria congesta	a96	a101	b58	42	44	25	1.25	.54
F	Astragalus convallarius	a-	a3	b10	-	1	6	.03	.15
F	Astragalus spp.	17	25	14	10	11	8	.20	.06
F	Castilleja flava	b21	ab10	a6	12	7	3	.11	.04
F	Calochortus nuttallii	a-	b5	a-	-	4	-	.02	-
F	Chenopodium leptophyllum (a)	-	b8	a-	-	3	-	.01	-
F	Crepis acuminata	b5	a-	a-	4	-	-	-	-
F	Cruciferae	2	-	-	1	-	-	-	-
F	Cryptantha spp.	ab4	a-	b8	2	-	5	-	.05
F	Descurainia pinnata (a)	-	-	5	-	-	2	-	.01
F	Erigeron eatonii	b90	a32	a22	39	16	12	.08	.11
F	Eriogonum umbellatum	b24	ab25	b49	12	12	22	.62	.68
F	Heuchera parvifolia	b8	ab1	a-	5	1	-	.03	-
F	Hymenoxys acaulis	-	7	3	-	2	1	.03	.15
F	Lesquerella spp.	b46	a8	ab23	23	7	15	.03	.12
F	Linum lewisii	2	10	5	1	5	3	.10	.07
F	Lupinus spp.	b21	a-	a-	10	-	-	-	-
F	Lychnis drummondii	-	2	3	-	1	1	.00	.00
F	Machaeranthera canescens	a-	b8	b6	-	4	3	.19	.18

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'88	'95	'00	'88	'95	'00	'95	'00
F	Machaeranthera grindelioides	-	-	1	-	-	1	-	.03
F	Penstemon humilis	$_{b}$92	$_{b}$90	$_{a}$39	44	38	20	1.05	.64
F	Penstemon spp.	-	3	-	-	1	-	.00	-
F	Petradoria pumila	$_{b}$3	$_{a}$-	$_{a}$-	3	-	-	-	-
F	Phlox austromontana	144	133	113	57	57	44	3.98	3.90
F	Phlox longifolia	$_{b}$143	$_{a}$75	$_{a}$70	55	36	32	.40	.58
F	Potentilla gracilis	$_{a}$-	$_{b}$21	$_{b}$14	-	11	6	.08	.05
F	Sedum lanceolatum	-	-	1	-	-	1	-	.03
F	Senecio multilobatus	$_{a}$-	$_{a}$-	$_{b}$7	-	-	4	-	.09
F	Taraxacum officinale	-	1	-	-	1	-	.00	-
F	Zigadenus paniculatus	36	32	32	17	19	15	.12	.14
Total for Annual Forbs		0	9	7	0	4	3	0.01	0.01
Total for Perennial Forbs		804	657	511	362	307	239	8.70	7.98
Total for Forbs		804	666	518	362	311	242	8.72	8.00

Values with different subscript letters are significantly different at % = 0.10

BROWSE TRENDS --
Herd unit 08A, Study no: 2

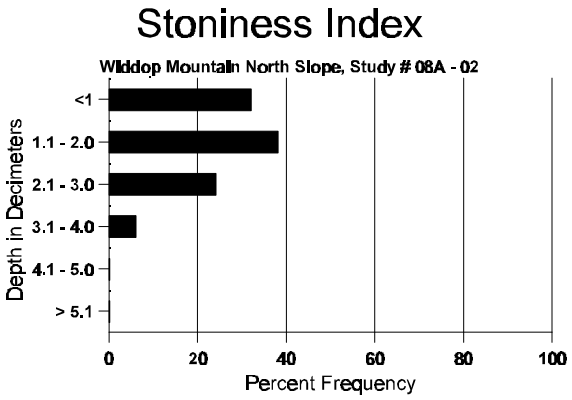
Type	Species	Strip Frequency		Average Cover %	
		'95	'00	'95	'00
B	Amelanchier utahensis	21	29	1.14	1.81
B	Artemisia nova	40	25	1.20	.97
B	Artemisia tridentata vaseyana	3	8	.41	.66
B	Cercocarpus montanus	97	97	19.55	19.04
B	Chrysothamnus viscidiflorus lanceolatus	80	73	3.75	3.28
B	Eriogonum microthecum	80	78	2.24	3.62
B	Gutierrezia sarothrae	23	16	.11	.39
B	Mahonia repens	1	2	-	.03
B	Symphoricarpos oreophilus	82	85	13.37	12.45
B	Tetradymia canescens	26	27	.34	.45
Total for Browse		453	440	42.15	42.73

BASIC COVER --
Herd unit 08A, Study no: 2

Cover Type	Nested Frequency		Average Cover %		
	'95	'00	'88	'95	'00
Vegetation	359	354	12.75	53.54	60.28
Rock	159	65	2.75	2.89	1.05
Pavement	166	163	15.25	3.31	7.23
Litter	397	383	57.25	57.47	59.54
Cryptogams	25	23	0	.15	.33
Bare Ground	205	198	12.00	6.32	13.68

SOIL ANALYSIS DATA --
Herd Unit 8A, Study # 2, Study Name: Widdop Mountain North Slope

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
13.84	57.6 (15.83)	7.4	43.3	34.2	22.6	5.5	3.4	115.2	0.9



PELLET GROUP FREQUENCY --
Herd unit 08A, Study no: 2

Type	Quadrat Frequency	
	'95	'00
Antelope	-	14
Moose	8	-
Elk	19	17
Deer	4	1
Cattle	-	1

Pellet Transect	
Pellet Groups per Acre	Days Use per Acre (ha)
'00	'00
139	12 (29)
278	16 (38)
574	44 (109)
44	3 (8)
139	12 (29)

BROWSE CHARACTERISTICS --
Herd unit 08A, Study no: 2

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Amelanchier utahensis																		
S	88	1	-	-	-	-	-	1	-	-	2	-	-	-	133			2
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	6	-	-	-	-	-	-	-	-	6	-	-	-	120			6
Y	88	4	1	-	2	-	-	-	-	-	6	-	1	-	466			7
	95	6	6	-	4	-	-	-	-	-	16	-	-	-	320			16
	00	7	5	-	1	2	-	2	-	-	17	-	-	-	340			17
M	88	-	-	1	-	-	-	-	-	-	1	-	-	-	66	39	31	1
	95	-	1	-	5	7	2	-	-	-	15	-	-	-	300	39	42	15
	00	3	3	1	1	2	3	1	-	-	14	-	-	-	280	28	22	14
D	88	-	-	1	-	-	-	-	-	-	1	-	-	-	66			1
	95	-	-	1	-	-	1	-	-	-	1	-	-	1	40			2
	00	1	-	3	-	1	1	-	-	-	5	-	-	1	120			6
X	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'88	11%	22%	11%	+ 9%
'95	42%	12%	03%	+11%
'00	35%	22%	03%	

Total Plants/Acre (excluding Dead & Seedlings)				
'88	598	Dec:		11%
'95	660			6%
'00	740			16%

Artemisia frigida

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
M	88	3	-	-	1	-	-	-	-	-	3	-	1	-	266	5	4	4
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'88	00%	00%	25%	
'95	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'88	266	Dec:		-
'95	0			-
'00	0			-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia nova																		
S	88	19	-	-	-	-	-	-	-	-	19	-	-	-	1266			19
	95	9	-	-	2	-	-	-	-	-	11	-	-	-	220			11
	00	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
Y	88	25	1	-	2	-	-	-	-	-	9	17	2	-	1866			28
	95	7	4	-	3	-	-	-	-	-	14	-	-	-	280			14
	00	10	-	-	-	-	-	-	-	-	10	-	-	-	200			10
M	88	33	2	-	3	-	-	1	-	-	38	1	-	-	2600	10	7	39
	95	35	20	1	13	-	-	-	-	-	69	-	-	-	1380	8	13	69
	00	49	1	-	-	-	1	1	-	-	52	-	-	-	1040	9	14	52
D	88	12	1	-	-	-	-	-	-	-	11	-	2	-	866			13
	95	3	-	-	1	-	-	-	-	-	3	-	-	1	80			4
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
X	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	160			8
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	160			8

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'88	05%	00%	05%	-67%
'95	28%	01%	01%	-26%
'00	02%	02%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'88	5332	Dec:	16%
	'95	1740		5%
	'00	1280		3%

Artemisia tridentata vaseyana																		
Y	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
M	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	-	1	-	3	-	-	-	-	-	4	-	-	-	80	12	11	4
	00	6	-	-	-	-	-	-	-	-	6	-	-	-	120	15	20	6
D	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
X	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'88	00%	00%	00%	
'95	25%	00%	00%	+50%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'88	0	Dec:	0%
	'95	80		0%
	'00	160		13%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Cercocarpus montanus																		
S	88	36	-	2	47	-	-	14	-	-	98	-	1	-	6600			99
	95	72	3	7	40	-	-	-	-	-	122	-	-	-	2440			122
	00	54	-	-	5	-	-	-	-	-	59	-	-	-	1180			59
Y	88	146	59	22	45	1	-	52	-	-	323	-	2	-	21666			325
	95	59	42	8	40	4	-	-	-	-	153	-	-	-	3060			153
	00	56	40	4	30	10	4	17	-	-	161	-	-	-	3220			161
M	88	2	9	20	-	-	-	-	-	-	31	-	-	-	2066	25	18	31
	95	3	18	21	15	93	34	-	-	-	184	-	-	-	3680	26	37	184
	00	6	36	57	8	9	68	-	-	-	184	-	-	-	3680	22	30	184
D	88	3	3	2	-	-	-	1	-	-	8	-	1	-	600			9
	95	-	-	-	-	4	3	-	-	-	6	-	-	1	140			7
	00	1	3	7	-	1	11	-	-	-	16	-	-	7	460			23
X	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'88	20%	12%	.82%	-72%
'95	47%	19%	.29%	+ 7%
'00	27%	41%	02%	

Total Plants/Acre (excluding Dead & Seedlings)				
'88	24332	Dec:		2%
'95	6880			2%
'00	7360			6%

Chrysothamnus viscidiflorus lanceolatus																		
S	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	1	-	-	1	-	-	-	-	-	2	-	-	-	40			2
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	88	31	1	-	1	-	-	-	-	-	28	1	4	-	2200			33
	95	9	-	-	2	-	-	-	-	-	11	-	-	-	220			11
	00	5	-	-	-	-	-	-	-	-	5	-	-	-	100			5
M	88	21	-	-	2	-	-	4	-	-	27	-	-	-	1800	11	9	27
	95	161	-	-	33	-	-	-	-	-	194	-	-	-	3880	12	14	194
	00	117	2	-	18	-	-	2	-	-	139	-	-	-	2780	10	11	139
D	88	-	-	-	-	-	-	1	-	-	1	-	-	-	66			1
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	5	1	-	1	-	-	-	-	-	4	-	-	3	140			7

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'88	02%	00%	07%	-21%
'95	00%	00%	00%	- 6%
'00	02%	00%	02%	

Total Plants/Acre (excluding Dead & Seedlings)				
'88	4066	Dec:		2%
'95	4100			0%
'00	3020			5%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Eriogonum microthecum																		
S	88	5	-	-	-	-	-	-	-	-	5	-	-	-	333			5
	95	7	-	-	2	-	-	-	-	-	9	-	-	-	180			9
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
Y	88	55	-	-	7	-	-	1	-	-	37	-	25	1	4200			63
	95	4	-	-	-	-	-	-	-	-	4	-	-	-	80			4
	00	9	-	-	-	-	-	-	-	-	9	-	-	-	180			9
M	88	71	2	-	14	-	-	5	-	-	92	-	-	-	6133	6	7	92
	95	219	2	-	23	-	5	-	-	-	249	-	-	-	4980	8	11	249
	00	146	6	-	31	-	-	-	-	-	181	-	2	-	3660	7	11	183
D	88	2	-	-	-	-	-	-	-	-	2	-	-	-	133			2
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	2	-	-	-	-	-	-	-	-	-	-	-	2	40			2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'88	01%	00%	17%	-52%
'95	.79%	02%	00%	-23%
'00	03%	00%	02%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'88	10466	Dec:	1%
	'95	5060		0%
	'00	3880		1%

Gutierrezia sarothrae																		
S	88	6	-	-	-	-	-	-	-	-	6	-	-	-	400			6
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	88	23	-	-	1	-	-	-	-	-	24	-	-	-	1600			24
	95	7	-	-	-	-	-	-	-	-	7	-	-	-	140			7
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
M	88	44	-	-	1	-	-	-	-	-	45	-	-	-	3000	5	3	45
	95	29	-	-	1	-	-	-	-	-	30	-	-	-	600	6	5	30
	00	21	-	-	-	-	-	-	-	-	21	-	-	-	420	6	7	21
D	88	2	-	-	-	-	-	-	-	-	1	-	1	-	133			2
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'88	00%	00%	01%	-84%
'95	00%	00%	00%	-43%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'88	4733	Dec:	3%
	'95	740		0%
	'00	420		0%

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Mahonia repens																		
M	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	3	-	-	-	-	-	-	-	-	3	-	-	-	60	5	4	3
	00	6	-	-	-	-	-	-	-	-	6	-	-	-	120	3	6	6

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'88	00%	00%	00%	
'95	00%	00%	00%	+50%
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'88	0	Dec:	-
	'95	60		-
	'00	120		-

Pediocactus simpsonii																		
M	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	4	4	0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'88	00%	00%	00%	
'95	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'88	0	Dec:	-
	'95	0		-
	'00	0		-

Pseudotsuga menziesii																		
S	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'88	00%	00%	00%	
'95	00%	00%	00%	
'00	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'88	0	Dec:	-
	'95	0		-
	'00	0		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Symphoricarpos oreophilus																		
S	88	4	1	-	1	-	-	-	-	-	6	-	-	-	400			6
	95	4	-	-	5	-	-	-	-	-	9	-	-	-	180			9
	00	6	-	-	2	-	-	-	-	-	8	-	-	-	160			8
Y	88	23	7	-	1	-	-	2	-	-	32	-	1	-	2200			33
	95	25	2	3	9	-	-	3	-	-	42	-	-	-	840			42
	00	13	-	-	2	-	-	-	-	-	15	-	-	-	300			15
M	88	33	2	-	4	-	-	-	-	-	38	-	1	-	2600	11	10	39
	95	126	12	6	70	1	-	-	-	-	215	-	-	-	4300	12	31	215
	00	120	3	-	52	1	-	7	-	-	165	1	17	-	3660	11	25	183
D	88	12	-	3	2	-	-	-	-	-	14	-	-	3	1133			17
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	3	-	-	3	-	-	-	-	-	3	-	-	3	120			6

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'88	10%	03%	06%	-13%
'95	06%	04%	00%	-21%
'00	02%	00%	10%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'88	5933	Dec:	19%
	'95	5140		0%
	'00	4080		3%

Tetradymia canescens																		
S	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	4	-	-	-	-	-	-	-	-	4	-	-	-	80			4
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
Y	88	25	1	-	-	-	-	-	-	-	26	-	-	-	1733			26
	95	6	-	-	-	-	-	-	-	-	6	-	-	-	120			6
	00	5	-	-	-	-	-	-	-	-	5	-	-	-	100			5
M	88	12	3	-	2	-	-	-	-	-	17	-	-	-	1133	11	6	17
	95	25	7	-	6	-	-	-	-	-	38	-	-	-	760	9	9	38
	00	26	2	-	-	-	-	1	-	-	29	-	-	-	580	7	8	29
D	88	1	-	-	-	-	-	1	-	-	2	-	-	-	133			2
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	1	4	-	-	-	-	-	-	-	4	-	-	1	100			5

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'88	09%	00%	00%	-71%
'95	16%	00%	00%	-11%
'00	15%	00%	03%	

Total Plants/Acre (excluding Dead & Seedlings)				
	'88	2999	Dec:	4%
	'95	880		0%
	'00	780		13%